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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,278	07/29/2003	Xuedong D. Huang	M61.12-0519	5698

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EXAMINER	
VO, HUYEN X	
ART UNIT	**PAPER NUMBER**
2626	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/629,278	HUANG ET AL.	
	Examiner	Art Unit	
	Huyen X. Vo	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 9 is objected to because of the following informalities: claim 9 cannot depend on itself. Examiner treated claim 9 being dependent on claim 8. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless – (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-9, 11-16, and 18-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Basu et al. (US 6594629).

4. Regarding claim 1, Basu et al. disclose a speech detection system, comprising:

an audio microphone outputting a microphone signal based on a sensed audio input (*col. 15, lines 37-65, receiving input speech from microphone*);

a speech sensor outputting a sensor signal based on a non-audio input generated by speech action (*col. 15, lines 37-65, receiving visual information from camera 4 in figure 1*); and

a speech detector component outputting a speech detection signal indicative of whether a user is speaking based on the sensor signal (*col. 15, lines 37-65, determine whether the user is speaker based on the received visual and audio information; it is inherent system issues signal indicating if the user is speaking to the processor so that the processors takes appropriate action*).

5. Regarding claim 11, Basu et al. disclose a speech recognition system, comprising:

a speech detection system comprising:

an audio microphone outputting a microphone signal based on a sensed audio input (*col. 15, lines 37-65, receiving input speech from microphone*);

a speech sensor outputting a sensor signal based on a non-audio input generated by speech action (*col. 15, lines 37-65, receiving visual information from camera 4 in figure 1*); and

a speech detector component outputting a speech detection signal indicative of whether a user is speaking based on the microphone signal and the sensor signal (*col. 15, lines 37-65, determine whether the user is speaker based on the received visual and audio information; it is inherent system issues signal indicating if the user is speaking to the processor so that the processors takes appropriate action*); and

a speech recognition engine providing a recognition output indicative of speech in the sensed audio input based on the microphone signal and the speech detection signal (*col. 15, lines 50-60, recognizing the buffered speech in step 812*).

6. Regarding claim 18, Basu et al. disclose a method of detecting speech, comprising:

generating a first signal, indicative of an audio input, with an audio microphone (*col. 15, lines 37-65, receiving input speech from microphone*);

generating a second signal indicative of facial movement of a user, sensed by a facial movement sensor (*col. 15, lines 37-65, receiving visual information from camera 4 in figure 1*); and

detecting whether the user is speaking based on the first and second signals (*col. 15, lines 37-65, determine whether the user is speaker based on the received visual and audio information*).

7. Regarding claim 2, Basu et al. further disclose the speech detection system of claim 1 wherein the speech detector component outputs the speech detection signal based on a first characteristic of the sensor signal and based on the microphone signal (*col. 15, lines 37-65, determine whether the user is speaker based on the received visual and audio information; it is inherent system issues signal indicating if the user is speaking to the processor so that the processors takes appropriate action*).

8. Regarding claim 3, Basu et al. further disclose the speech detection system of claim 2 wherein the first characteristic of the sensor signal has a first level when the user is speaking and a second level when the user is not speaking and wherein the

speech detector component outputs the speech detection signal based on a level of the first characteristic of the sensor signal relative to a baseline level of the first characteristic that comprises a predetermined one of the first and second levels of the characteristic (*col. 15, lines 37-65, first level is equivalent with movement of the mouth/lips; second level is equivalent with no mouth/lips movement. So, if mouth/lips moves and speech is received, then speaker is speaking*).

9. Regarding claim 4, Basu et al. further disclose the speech detection system of claim 3 wherein the baseline level is calculated based on a level of the first characteristic over a time period (*the system in figure 1 processes input video and audio continuously over a time period; also referring to figure 5*).

10. Regarding claim 5, Basu et al. further disclose the speech detection system of claim 4 wherein the baseline level is calculated by averaging the level of the first characteristic over the time period (*figure 5, each frame is calculated and yield an average score number*).

11. Regarding claim 6, Basu et al. further disclose the speech detection system of claim 4 wherein the baseline level is recalculated intermittently during operation of the speech detection system (*the operation of figure 1 is a continuous process, the calculation is performed on every frame*).

12. Regarding claim 7, Basu et al. further disclose the speech detection system of claim 6 wherein the baseline level is recalculated periodically to represent the level of the first characteristic over a revolving time window (*the operation of figure 1 is a continuous process, the calculation is performed on every frame*).

13. Regarding claim 8, Basu et al. further disclose the speech detection system of claim 6 wherein the speech detection component outputs the speech detection signal based on a comparison of the level of the first characteristic of the sensor signal to the baseline level, and wherein the comparison is performed periodically (*col. 10, lines 7-20, comparing score to threshold*).

14. Regarding claim 9, Basu et al. further disclose the speech detection system of claim 8 wherein the comparison is performed more frequently than the baseline level is recalculated (*col. 10, lines 7-20, comparing score to threshold; score is continuously calculated while threshold is calculated once*).

15. Regarding claim 12, Basu et al. further disclose the speech recognition system of claim 11 wherein the speech detector component calculates the speech detection signal as a speech detection measure, indicative of a probability that the user is speaking (*line 65 in col. 15*).

16. Regarding claim 13, Basu et al. further disclose the speech recognition system of claim 12 wherein the speech detector component combines the speech detection measure with the microphone signal to generate a combined signal (*figure 8B, recognizing both speech and video*).

17. Regarding claim 14, Basu et al. further disclose the speech recognition system of claim 13 wherein the speech recognition engine generates the recognition output based on the combined signal (*figure 8B, recognizing both speech and video*).

18. Regarding claim 15, Basu et al. further disclose the speech recognition system of claim 14 wherein the speech detection measure comprises a probability that the user is speaking (*figure 5 and/or col. 13, lines 36-50*).

19. Regarding claim 16, Basu et al. further disclose the speech recognition system of claim 15 wherein the combined signal comprises a product of the probability and the microphone signal (*col. 13, lines 36-65*).

20. Regarding claims 19-20, Basu et al. further disclose the method of claim 18 wherein generating the second signal comprises: sensing vibration of one of the user's jaw and neck, and sensing an image indicative of movement of the user's mouth (*camera 4 in figure 1 senses movement of the mouth and jaw and neck*).

21. Regarding claim 21, Basu et al. further disclose the method of claim 18 and further comprising: providing a speech detection signal based on detecting whether the user is speaking (*col. 15, lines 37-65 and/or referring to 8A-B, activation recognition if detecting the user is speaking*).

22. Regarding claim 22, Basu et al. further disclose the method of claim 21 and further comprising: recognizing speech based on the first signal and the speech detection signal (*col. 15, lines 37-65 and or referring to figures 8A-B, if speaking is detected, then activate recognition*).

23. Regarding claim 23, Basu et al. further disclose the method of claim 22 wherein recognizing speech comprises: increasing a likelihood that speech is recognized if the speech detection signal indicates that the user is speaking, and decreasing a likelihood that speech is recognized if the speech detection signal indicates that the speaker is not speaking (*col. 15, lines 37-65 and or referring to figures 8A-B, if speaking is detected, then activate recognition; inherently, if the user is detected speaking, then the likelihood that speech is recognized is increased because the system is performing recognition on the input speech, otherwise, no recognition of the input speech and thus lowering the likelihood of speech being recognized, because the system is not performing recognition*).

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. Claims 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basu et al. (US 6594629) in view of Moore (US 6707921).

26. Regarding claims 10 and 17, Basu et al. fail to specifically disclose the speech detection system of claims 1 and 11, respectively, wherein the audio microphone and the speech sensor are mounted to a headset. However, Moore teaches the audio microphone and the speech sensor are mounted to a headset (*figure 1, elements 207 and 110*).

Since Basu et al. and Moore are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Basu et al. by incorporating the teaching of Moore in order to selectively provide sound to the hearing impaired user.

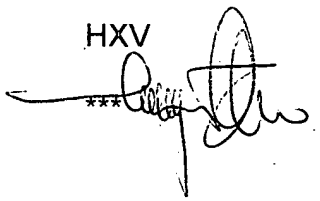
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen X. Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HXV



1/12/2007